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EXAMINER
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ART UNIT	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

	Application No.	Applicant(s)
Office Action Summary	10/817,466	XU ET AL.
	Examiner	Art Unit	
	ANDREW CHOU	2192	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on <u>02 April 2004</u>.

2a) ☐ This action is **FINAL**.　　2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) <u>1-39</u> is/are pending in the application.

　　4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) <u>1-39</u> is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☒ The drawing(s) filed on _____ is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.

　　Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

　　Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

　　a) ☐ All　b) ☐ Some *　c) ☐ None of:

　　　1. ☐ Certified copies of the priority documents have been received.

　　　2. ☐ Certified copies of the priority documents have been received in Application No. _____.

　　　3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

　　* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date <u>04/02/2004</u>.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____

DETAILED ACTION

1.   Claims 1-39 are pending. The priority date recognized for this application is

11/10/2003.

Information Disclosure Statement

2.   The information disclosure statement (IDS) submitted on 04/02/2004 is in

compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure

statement is being considered by the examiner.

Oath/Declaration

3.   The Office acknowledges receipt of properly signed oath/declaration filed on

04/02/2004.

Claim Rejections - 35 USC § 102

4.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5.   Claims 1-2, 4-17, 19-26, 28-35, and 37-39 are rejected under 35 U.S.C. 102(b)

as being anticipated by Shagam 6,161,216 (hereinafter Shagam).

Claim 1:

Shagam discloses a method comprising:

providing a debugger (see for example FIG. 1, items 16, "Source Level Debugger", and

related text) suitable for a unit under test, wherein the unit under test includes a

program under test (see for example FIG. 1, item 19, "Executable Software

Microcode");

causing the debugger to be loaded into the unit under test (see for example FIG. 1, item

17, "Debugger Trace Component", and related text);

sending a plurality of test commands to the unit under test according to a test script (see

for example column 1, lines 44-46, "...debugging script..."); and

activating the debugger when a watched event occurs during execution of the program

under test (see for example column 1, lines 46-53).

Claim 2:

Shagam further discloses the method of claim 1 further comprising:

directing a debugger command to the debugger; and recording information provided by

the debugger according to the debugger command (see for example FIG. 3, step 220,

"Write Tracepoint into Debugging Script", acts as a command to the debugger and

records information).

Claim 4:

Shagam further discloses the method of claim 1 further comprising:

invoking the debugger while specifying the program under test as a target of the

debugger (see for example column 3, lines 50-60, "...debugging script...").

Claim 5:

Shagam further discloses the method of claim 1 further comprising:

instructing the debugger to associate itself with a process executing on the unit under

test, wherein the process corresponds to the program under test (see for example

column 3, lines 50-60, "…debugging script…").

Claim 6:

Shagam further discloses the method of claim 1 further comprising:

sending a command to the debugger, wherein the command performs at least one of:

setting a breakpoint in the program under test;

setting a watchpoint in the program under test;

setting a catchpoint in the program under test;

setting a tracepoint in the program under test (see for example column 4, lines 3-26,

"…tracepoint…").

Claim 7:

Shagam further discloses the method of claim 1 wherein the watched event includes at

least one of a processor exception, a program under test error, reaching a breakpoint in

the program under test; reaching a watchpoint in the program under test; reaching a

catchpoint in the program under test; and reaching a tracepoint in the program under

test (see for example column 4, lines 3-26, "…tracepoint…").

Claim 8:

Shagam further discloses the method of claim 1 further comprising:

selecting a platform-specific debugger corresponding to a processor in the unit under

test

(see for example FIG. 1, item 16, "Source code debugger", and related text); and

loading the platform-specific debugger into the unit under test (see for example FIG. 1, item 17, "Debugger trace component", and related text).

Claim 9:

Shagam further discloses the method of claim 8 further comprising:

loading, into the unit under test, a symbol file corresponding to the program under test (see for example column 3, lines 50-59, "...symbol table...").

Claim 10:

Shagam discloses a system comprising:

a memory (see for example FIG. 2, item 5, "Non-volatile data storage", and related text);

a processor coupled to the memory (see for example FIG. 2, item 2, "Processor", and related text); and

a debugger agent, wherein at least a portion of the debugger agent is encoded as instructions stored in the memory and executable on the processor (see for example FIG. 1, items 16, "Source Level Debugger", and related text), and wherein the debugger agent is configured to:

select a debugger program suitable for a unit under test, wherein the unit under test includes a program under test (see for example FIG. 1, item 17, "Debugger Trace Component", and related text);

cause the debugger program to be loaded into the unit under test; send a plurality of test commands to the unit under test according to a test script (see for example FIG. 3, step 220, "Write Tracepoint into Debugging Script", acts as a command to the debugger and records information); and

activate the debugger program when a watched event occurs during execution of the program under test (see for example column 4, lines 3-26, "…tracepoint…").

Claim 11:

Shagam further discloses the system of claim 10 further comprising at least one debugger program stored in at least one of the memory and a storage device accessible by the processor (see for example FIG. 2, item 3, "Working Storage", and related text).

Claim 12:

Shagam further discloses the system of claim 10 further comprising at least one symbol file stored in at least one of the memory and a storage device accessible by the processor (see for example column 3, lines 50-59, "...symbol table...").

Claim 13:

Shagam further discloses the system of claim 10 further comprising:

a test script handler, wherein at least a portion of the test script handler is encoded as instructions stored in the memory and executable on the processor (see for example column 2, lines 53-68).

Claim 14:

Shagam further discloses the system of claim 13 wherein the test script handler is further configured to send the plurality of test commands to the debugger agent (see for example column 1, lines 46-56, "…trace point…").

Claim 15:

Shagam further discloses the system of claim 10 further comprising:

a second memory (see for example FIG. 2, item 4, "Program Storage", and associated

text);

a second processor coupled to the second memory; and a test script handler, wherein

at least a portion of the test script handler is encoded as instructions stored in the

second memory and executable on the second processor (see for example FIG. 3, step

220, and associated text).

Claim 16:

Shagam further discloses the system of claim 15 wherein the test script handler is

further configured to send the plurality of test commands to the debugger agent (see for

example column 1, lines 46-56, "...trace point...").

Claim 17:

Shagam further discloses the system of claim 10 wherein the debugger agent is further

configured to:

direct a debugger program command to the debugger program (see for example FIG. 3,

step 220, and related text); and

record information provided by the debugger program according to the debugger

command (see for example FIG. 3, step 220, and related text).

Claim 19:

Shagam further discloses the system of claim 10 wherein the debugger agent is further

configured to:

invoke the debugger program while specifying the program under test as a target of the

debugger program (see for example column 3, lines 50-60, "...debugging script...").

Claim 20:

Shagam further discloses the system of claim 10 wherein the debugger agent is further configured to:

command the debugger program to associate itself with a process executing on the unit under test, wherein the process corresponds to the program under test (see for example column 3, lines 50-60, "…debugging script…").

Claim 21:

Shagam further discloses the system of claim 10 wherein the debugger agent is further configured to:

send a command to the debugger program, wherein the command performs at least one of:

setting a breakpoint in the program under test;

setting a watchpoint in the program under test;

setting a catchpoint in the program under test;

setting a tracepoint in the program under test (see for example column 4, lines 3-26, "…tracepoint…").

Claim 22:

Shagam further discloses the system of claim 10 wherein the watched event includes at least one of a processor exception, a program under test error, reaching a breakpoint in the program under test; reaching a watchpoint in the program under test; reaching a catchpoint in the program under test; and reaching a tracepoint in the program under test (see for example column 4, lines 3-26, "…tracepoint…").

Claim 23:

Shagam further discloses the system of claim 10 wherein the debugger agent is further configured to:

select a platform-specific debugger program corresponding to a processor in the unit under test (see for example FIG. 1, item 16, "Source code debugger", and related text); and

load the platform-specific debugger program into the unit under test (see for example FIG. 1, item 17, "Debugger trace component", and related text).

Claim 24:

Shagam further discloses the system of claim 23 wherein the debugger agent is further configured to:

load, into the unit under test, a symbol file corresponding to the program under test (see for example column 3, lines 50-59, "...symbol table...").

Claim 25:

Shagam discloses a computer readable medium comprising program instructions executable on a processor, the computer readable medium being at least one of an electronic storage medium, a magnetic storage medium, an optical storage medium, and a communications medium conveying signals encoding the instructions, wherein the program instructions are operable to implement each of (see for example column 2, lines 54-66,):

providing a debugger suitable for a unit under test, wherein the unit under test includes a program under test (see for example FIG. 1, item 17, "Debugger Trace Component", and related text);

causing the debugger to be loaded into the unit under test see for example FIG. 3, step 220, "Write Tracepoint into Debugging Script", acts as a command to the debugger and records information);

sending a plurality of test commands to the unit under test according to a test script (see for example column 4, lines 3-26, "…tracepoint…"); and

activating the debugger when a watched event occurs during execution of the program under test (see for example column 4, lines 3-26, "…tracepoint…").

Claim 26:

Shagam further discloses the computer readable medium of claim 25 further comprising program instructions operable to implement each of:

directing a debugger command to the debugger (see for example FIG. 3, step 220, "Write Tracepoint into Debugging Script", acts as a command to the debugger and records information); and

recording information provided by the debugger according to the debugger command (see for example FIG. 3, step 220, "Write Tracepoint into Debugging Script", acts as a command to the debugger and records information).

Claim 28:

Shagam further discloses the computer readable medium of claim 25 further comprising program instructions operable to implement:

invoking the debugger while specifying the program under test as a target of the

debugger (see for example column 3, lines 50-60, "…debugging script…").

Claim 29:

Shagam further discloses the computer readable medium of claim 25 further comprising

program instructions operable to implement:

instructing the debugger to associate itself with a process executing on the unit under

test, wherein the process corresponds to the program under test (see for example

column 3, lines 50-60, "…debugging script…").

Claim 30:

Shagam further discloses the computer readable medium of claim 25 further comprising

program instructions operable to implement:

sending a command to the debugger, wherein the command performs at least

one of:

setting a breakpoint in the program under test;

setting a watchpoint in the program under test;

setting a catchpoint in the program under test;

setting a tracepoint in the program under test (see for example column 4, lines 3-26,

"…tracepoint…").

Claim 31:

Shagam further discloses the computer readable medium of claim 25 wherein the

watched event includes at least one of a processor exception, a program under test

error, reaching a breakpoint in the program under test; reaching a watchpoint in the

program under test; reaching a catchpoint in the program under test; and reaching a

tracepoint in the program under test (see for example column 4, lines 3-26,

"...tracepoint...").

Claim 32:

Shagam further discloses the computer readable medium of claim 25 further comprising

program instructions operable to implement each of

(see for example FIG. 1, item 16, "Source code debugger", and related text); and

loading the platform-specific debugger into the unit under test (see for example FIG. 1,

item 17, "Debugger trace component", and related text).

Claim 33:

Shagam further discloses the computer readable medium of claim 25 further comprising

program instructions operable to implement:

loading, into the unit under test, a symbol file corresponding to the program

under test (see for example column 3, lines 50-59, "...symbol table...").

Claim 34:

Shagam discloses an apparatus comprising:

a means for causing a means for debugging a program under test to be loaded

into a unit under test, wherein the unit under test includes the program under test;

a means for sending a plurality of test commands to the unit under test

according to a test script (see for example FIG. 1, item 17, "Debugger Trace

Component", and related text); and

a means for activating the means for debugging when a watched event occurs

during execution of the program under test (see for example column 4, lines 3-26,

"…tracepoint…").

Claim 35:

Shagam further discloses the apparatus of claim 34 further comprising:

a means for directing an instruction to the means for debugging a program

under test (see for example column 3, lines 50-60, "…debugging script…"); and

a means for recording information provided by the means for debugging a program

under test (see for example column 3, lines 50-60, "…debugging script…").

Claim 37:

 Shagam further discloses the apparatus of claim 34 further comprising:

a means for instructing the means for debugging a program under test to associate itself

with a process executing on the unit under test, wherein the process corresponds to the

program under test (see for example column 3, lines 50-60, "…debugging script…")..

Claim 38:

 Shagam further discloses the apparatus of claim 34 further comprising:

a means for sending a command to the means for debugging a program under test,

wherein the command performs at least one of: setting a breakpoint in the program

under test; setting a watchpoint in the program under test; setting a catchpoint in the

program under test; setting a tracepoint in the program under test (see for example

column 4, lines 3-26, "…tracepoint…").

Claim 39:

Shagam further discloses the apparatus of claim 34 wherein the watched event includes

at least one of a processor exception, a program under test error, reaching a breakpoint

in the program under test; reaching a watchpoint in the program under test; reaching a

catchpoint in the program under test; and reaching a tracepoint in the program under

test (see for example column 4, lines 3-26, "...tracepoint...").

Claim Rejections - 35 USC § 103

6.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

7.   Claims 3, 18, 27, and 36 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Shagam.

Claim 3:

Although Shagam does not explicitly disclose the method of claim 1 further comprising:

pausing execution of the program under test: and allowing a user to control the

debugger, Shagam does indeed suggest the insertion of breakpoints (see for example

col. 1, lines 29-36, "...trace points or breakpoints..."), which would pause the execution

of a program and allow user control. It would have been obvious to a person of ordinary

skill in the art to include the functionality of inserting breakpoints to the method taught in

Shagam to improve the performance and provide added value to the source code debugger (see for example Shagam col. 1, lines 35-36).

Claim 18:

Although Shagam does not explicitly disclose the system of claim 10 wherein the debugger agent is further configured to: suspend execution of the program under test: and allow a user to control the debugger program, Shagam does indeed suggest the insertion of breakpoints (see for example col. 1, lines 29-36, "…trace points or breakpoints…"), which would pause the execution of a program and allow user control. It would have been obvious to a person of ordinary skill in the art to include the functionality of inserting breakpoints to the method taught in Shagam to improve the performance and provide added value to the source code debugger (see for example Shagam col. 1, lines 35-36).

Claim 27:

Although Shagam does not explicitly disclose the computer readable medium of claim 25 further comprising program instructions operable to implement each of: pausing execution of the program under test: and allowing a user to control the debugger, Shagam does indeed suggest the insertion of breakpoints (see for example col. 1, lines 29-36, "…trace points or breakpoints…"), which would pause the execution of a program and allow user control. It would have been obvious to a person of ordinary skill in the art to include the functionality of inserting breakpoints to the method taught in Shagam to improve the performance and provide added value to the source code debugger (see for example Shagam col. 1, lines 35-36).

Claim 36:

Although Shagam does not explicitly disclose the apparatus of claim 34 further

comprising: a means for pausing execution of the program under test: and a means for

allowing a user to control the means for debugging a program under test, Shagam does

indeed suggest the insertion of breakpoints (see for example col. 1, lines 29-36,

"...trace points or breakpoints..."), which would pause the execution of a program and

allow user control. It would have been obvious to a person of ordinary skill in the art to

include the functionality of inserting breakpoints to the method taught in Shagam to

improve the performance and provide added value to the source code debugger (see

for example Shagam col. 1, lines 35-36).

Conclusion

8.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Andrew Y. Chou whose telephone number is (571) 272-

6829. The examiner can normally be reached on Monday-Friday, 8:00 am - 4:30 pm. If

attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Tuan Q. Dam, can be reached on (571) 272-3695.

The fax phone number for the organization where this appiication or proceeding is

assigned is (571) 273 8300.

Any inquiry of a general nature of relating to the status of this application or proceeding

should be directed to the TC 2100 Group receptionist whose telephone number is (571) 272 2100.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair- direct.uspto.,qov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll free)

/Andrew Chou/
Examiner, Art Unit 2192

/Eric B. Kiss/
Eric B. Kiss
Primary Examiner, Art Unit 2192